May 2, 1944. R. EVANS 2,347,895

VENTILATOR

Filed Feb. 9, 1942

Fig. 1.

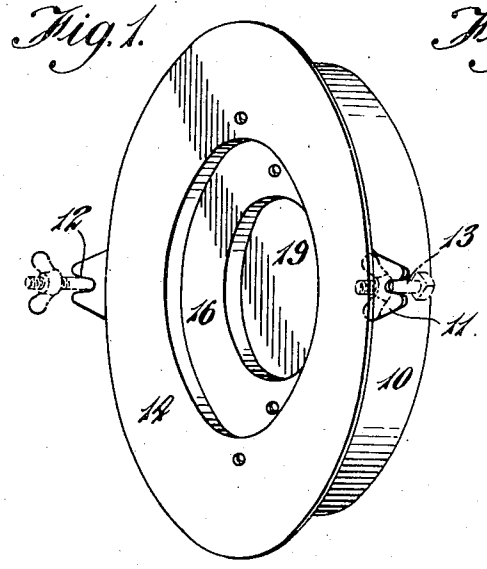


Fig. 2.

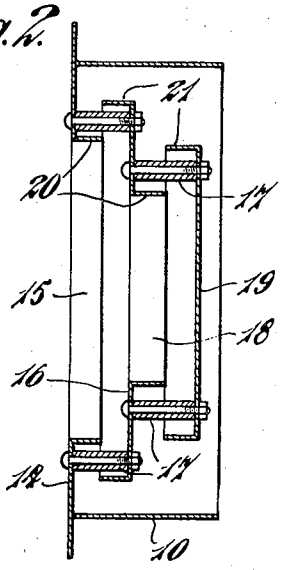


Fig. 3.

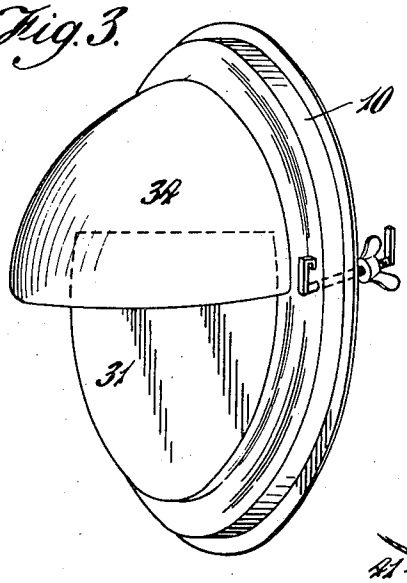


Fig. 4.

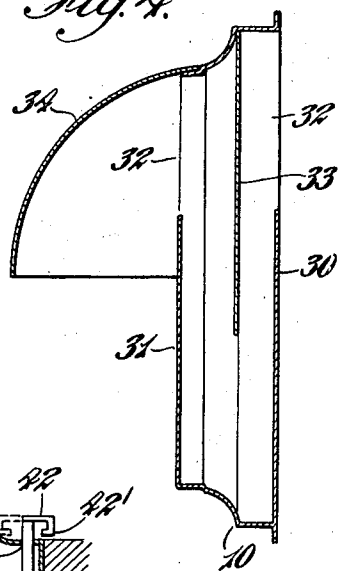
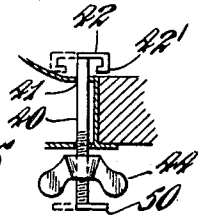


Fig. 5.



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UNITED STATES PATENT OFFICE

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VENTILATOR

Rhys Evans, London, England

Application February 9, 1942, Serial No. 430,125
In Great Britain May 27, 1941

2 Claims. (Cl. 98—37)

This invention relates to improvements in ventilators and has for its object to provide a ventilator, more particularly for ships' portholes and factories which, whilst allowing an air flow approximating to that given by an unobstructed porthole or like aperture, will, at the same time, effectively prevent the egress of light through the porthole or other aperture.

The ventilator according to the present invention comprises essentially a tubular casing adapted to fit snugly in the porthole or other aperture, said casing being provided with a transverse web which is opaque, with the exception of an aperture which is masked by a spaced plate, so that, whilst an inflow and/or outflow of air is possible, the egress of light is prevented.

The said aperture may be centrally disposed, in which case the spaced plate is of larger diameter than the same.

According to the preferred embodiment of the present invention, the casing is provided with front and back opaque screens which extend over more than one-half of the surface of the casing but not completely over the said surfaces so that registering air spaces are provided, a similar, but oppositely disposed, screen being interposed between the front and back screens so as effectively to prevent the egress of light.

In order still further to increase the efficiency of this preferred embodiment, a hood in the form of a part of a sphere may be provided over the back aperture.

Certain other novel features of construction and arrangement are provided by the present invention, these being fully described hereinafter and claimed in the appended claims.

In order that this invention may be the more clearly understood and readily carried into effect, I will proceed to describe the same with reference to the accompanying drawing, which illustrates by way of example and not of limitation certain convenient embodiments of this invention, and in which:

Figure 1 is a perspective view of one form of black-out ventilator according to the present invention adapted for use in a ventilator, and

Figure 2 is a central vertical section through the same.

Figure 3 is a perspective view of a modified and preferred embodiment of the present invention, and

Figure 4 is a central vertical section through the same.

Figure 5 is a detail horizontal sectional view, illustrating one method of securing the black-out ventilator in position in the porthole.

Referring now to the drawing, and more particularly to Figures 1 and 2 thereof, the black-out ventilator therein illustrated is adapted for use with ships' portholes and comprises a tubular outer casing **10** which is a snug fit in the porthole (not shown), and is adapted to be secured therein by means of outstanding ears **11** which are slotted as at **12** to receive the usual porthole securing bolts shown in broken lines at **13**.

Transversely disposed across the outer casing **10** is a metal sheet **14** forming an opaque web, with the exception of a central aperture **15** of the desired size. This aperture **15** is covered by a circular metal masking plate **16** which is spaced away from the web **14** by means of spacing sleeves **17**. The masking plate **16** is also provided with a central aperture **18** which, in turn, is masked by a further masking plate **19** of larger diameter than the aperture **18** and spaced from the plate **16** by spacing sleeves **17**. This arrangement of apertured plates and masking discs or sheets may be continued to any degree considered necessary in order to give the desired air flow.

In all cases the apertures and masking plates may be provided with oppositely directed upstanding and peripheral flanges **20** and **21** respectively, these flanges, at one or more stages, preferably overlapping one another in their planar disposition so as to avoid all possibility of the egress of light.

Referring now to the modified construction illustrated in Figures 3 to 5 of the accompanying drawing, this embodiment has been found to be preferable in many cases to that illustrated in Figures 1 and 2, and comprises the tubular casing **10**, as in the previously described construction. The casing in this embodiment of the present invention is provided with inner or front and outer or back opaque screens **30** and **31** respectively which extend above the horizontal diameter but not to the top of the device so that air spaces **32** are provided. The screens **30** and **31** thus cover more than one-half of the surface of the casing but not the whole of the same. A similar, but oppositely disposed intermediate, screen **33** is disposed between the front and back screens **30** and **31** so as effectively to prevent the egress of light and, if desired, a hood **34** in the form of a part of a sphere may be provided over the back aperture further to increase the efficiency of the device.

A further feature of the present invention is the provision of very simple and effective means

for securing the preferred form of black-out ventilator according to the present invention in position in the porthole. To this end, two or more securing bolts 40 are provided passing freely through suitable holes 41 in the casing 10 (see more particularly Figure 5), and are provided at their outer ends with outstanding arms 42. In order to mount the complete device in position, the securing bolts 40 are turned so that the outstanding arms 42 lie within the perimeter of the casing (see the broken line position in Figure 5), and the device is then placed in position in the porthole. The securing bolts 40 are then turned so that the outstanding arms 42 project beyond the perimeter of the porthole on the outside of the same and are tightened up to clamp the device in position by means of wing nuts 44 on their inner threaded ends.

The outer ends of the outstanding arms 42 are conveniently turned back upon themselves as at 42' to give a satisfactory bearing surface and, in order to facilitate the turning of the bolts 40, as above described, the inner ends of the bolts 40 may be provided with arms 50 similarly disposed radially to the outer arms 42. This will serve not only to facilitate the operation of the securing bolts but will also serve as indication of the position of the outstanding arms 42 on the outside of the porthole, as will readily be understood.

Although the present invention is more particularly intended for use as a porthole black-out ventilator, it will be obvious that it is also applicable to black-out ventilators for other apertures.

I claim:

1. A ventilator for insertion into port holes, windows and like wall openings, comprising, an annular frame including inner and outer cylindrical sections, the latter being of smaller diameter than the former and connected by an intermediate section of arcuate cross section, an annular offset flange carried by and of greater diameter than said inner section which acts as an abutment when the ventilator frame is inserted into a wall opening from the room side thereof, inner and outer opaque screens respectively connected with the lower inner edge of the inner section and the outer lower edge of the outer section and extending in the same direction partially across the open area of the frame at right angles to the longitudinal axis thereof, an intermediate screen connected to the upper edge of the frame at the junction of the inner and intermediate sections and also extending partially across the frame opening with its free edge disposed between and in spaced overlapping relation with the free edges of the first mentioned screens, and a hood of arcuate cross section having its base connected to the upper side of the outer section of the frame opposite the outer screen and having its open end terminating at a plane disposed below the free edge of said outer screen thereby to overlap the said outer screen and shield the opening in the outer section of the frame.

2. A ventilator according to claim 1 wherein a clamping device is provided to permit locking the ventilator frame in the wall opening from the room side thereof, said device including a bolt having a shank piercing the wall of the inner opaque screen and the arcuate intermediate section and also having threads on its inner portion, a wing-nut on said threads, projecting arms at the inner and outer extremities of said bolt shank and offset in a common radial plane, whereby the position of the inner arm will indicate when the outer arm is in position to engage the outer face of the wall opening so that the base of the wing-nut may be rotated on the shank into bearing engagement with the inner opaque screen to move the bolt shank and pull the outer arm in gripping engagement with the outer face of the wall opening while also drawing the said flange on the inner section against the inner face of the wall opening to rigidly clamp the frame in said opening.

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